Data Visualization for Storytelling and Discovery: Module 4 video, part 1 - Books

On week 3 you learn how to communicate through visualizations and you learn how to use software tools such as Flourish to design effective interactive graphics. This course is intended to teach you the basics of data visualization, but our time is very limited. So I cannot teach you everything you possibly need to know about data visualization. This course is just a springboard. You need to take things to the next level on your own. Taking a look at other resources.
There are several things that I will recommend you to do in case that this course has gotten you interested in data visualization and you want to learn more. So on one hand, I would recommend that you start creating your own library of data visualization. There are plenty of books about data visualization out there many excellent readings out there that you can consult. I would like to give you my own personal recommendations of books that you can consult to keep learning in the future.

First of all, I would like to refer to books that cover the visualization very broadly as a field. The main one that I would consult about that will be Andy Kirk's data visualization book which was published I believe a couple of couple of years ago. It's a great overview of data visualization for business analytics, for a statistical analysis, for journalism and so on and so forth. My on the Truthful Art also provides a broad overview of the world of data visualization. Talking about the main principles. Talking about how to think critically about data. How to represent it well. And so on and so forth. And that leads me to one very important recommendation.
Remember that one of the principles. That I mentioned at the beginning of the course about how to create a good graphic was. Use good data. So how do you assess the quality of data? Well, sometimes very often you will not be able to do that in your own because you need to have a domain specific knowledge to assess the quality of data about education or about economics, etc. But still learning a little bit about, you know, critical thinking about data numeracy, quantitative thinking can take you long way. And there are several books that helped me quite a lot in the past to develop my own sense of um does these data look good or does this data look a little bit dubious. How do you develop that sense? Well books like these can help you with that.

One of my favorite ones is naked statistics, which is a great introduction to statistics without any formulas. One of the things that most of my students fear the most when I recommend that they learn in statistics is that this is that oh all these calculations involved in this statistics are so complex. And sometimes they are but they are based on principles that any human being can understand. So negative statistics is a great introduction to the main principle of the statistics without the calculations without the arithmetic behind those principles a great great book. But there are many others for example Bad Science written by a medical doctor who happens to be a journalist as well Ben Goldacre who used to write for the Guardian is a great introduction to critical thinking about data particularly data that comes from the medical and pharmaceutical world. How not to the wrong by Jordan Ellenberg is a great book about mathematical thinking it's another recommendation.

And then if you really want to learn statistics, then you need to take your skills to the next level. You need to actually learn the formulas, right? So the books on the second row of this is slide provide that

understanding. These are some of my favorites. Statistics unplugged is one of the best stats 101 books that I have ever seen. And then all the others are all are also quite good discovered any statistics using R for example is a book that is a brick of a book is like 1,000 pages super super long, but you don't need to read it all. You can just consult it. Every time that you have a question about a particular statistical method. This could be a great resource to do that. And at the same time he also teaches you a little bit of R coding. R is a programming language that was originally designed to do statistical analysis. So learning a little bit of R in the future doesn't hurt anybody.

And often overlooked branch of data visualization is mapping. It's very important to learn about maps. So here you have three books that are really love about mapping and I have organized these in order. And the order I would read them. The first one is called How to Lie with Maps which actually is a little bit of a misnomer because it's actually about the opposite how to tell the truth with maps. It's a great great book that is on it's Third Edition at the moment. The second one is sort of a Bible about, about mapping about data mapping. Cartography and geovisualization this a little bit geekier and it really really gets into the nitty-gritty of how to design good data maps, a great resource. And the last one, how maps work is a very good overview of how the findings in cognitive science coming form the way in which we design not only maps, but also charts of different kinds.

If you are into statistics. If you want to go deeper into a a visualization for the statistical analysis or for scientific analysis. These are a series of books that I have read that I believe can inform that process. I have already referred to William Cleveland's the Elements of Graphing Data. But I would also like to mention a calling where's information visualization, which is considered the Bible in terms of visual perception. How visual perception can inform the way that we shape data and we design the data. R for data science is a great introduction to the R programming language by Hadley Wickham who is one of the main developers behind the R programming language. And then later on you have other books that I would also recommend such as Visualization Analysis and Design which I have already mentioned this course by Tamara Munzner. Graphic Design for the Eye and Mind written by a cognitive psychologist Stephan Kosslyn who used to be the head of the psychology department at Harvard University and the Grammar of Graphics, which explains how graphics work right? What is the grammar of Graphics? What is the vocabulary and the symbols that we use in the most common kinds of charts and graphs.

If you don't care that much about a statistical analysis, but you care a little bit more about business analytics you want to use visualization to create charts to inform stakeholders or your bosses or you need to design dashboards to summarize data. These are great books that can help you with that process. For example data at work by Jorge Camões is a great great introduction to data visualization in particular if you use Excel. Jorge has a website called ExcelCharts.com which pairs really nicely with the book. Storytelling with data is quickly becoming a best-seller is a very very good introduction to charting for business analytics and then all the other ones can also be quite informative.

For example, creating better graphs or some of my favorites such as Information Dashboard Design by Stephen Few. So if you use tools such as Tableau or PowerBi or click view tools that are used to design a dashboard. This could be a great resource. And the most recent one is the big book of

dashboards. This is actually one of my favorites in this mix because it shows you plenty of great examples of dashboard that you can get inspiration from that you can base your own dashboards your own dashboards on.

If you work in the worlds of Journalism or news design their also books that can be good for you. These are just a series of them. Designed for information for example by Isabel Meirelles is uh is a book that I really really like. It provides a good introduction to design principles. It gives tons of examples of graphics published in different kinds of media. Then you also have the Malofiej written with a J at the end book series. The Malofiej is a competition that happens in Spain every year. It has happened for the past taking place for the past 25 years or so. It's called the international infographics competition and this pair with a conference. There's also a conference associated with it that happens every year in Pamplona Spain. Every year the organization of the Malofiej awards publishes a book that showcases all the winners from the previous year. So these series of books is fantastic. If you want to get an overview of how news visualization and infographics has changed throughout the years for the past two decades of history.

Another quite interesting series of books is the best American infographics series of books. I believe that there are like three or four books in this series and it's also a great coffee table book that you can use every now and then to get inspiration from. And finally if you are interested in the more the more creative, wacky, artistic side of visualization. There are several books that you can consult as well. One of my favorites for example is the Book of Trees by Manual Lima, which is a historical overview about how tree shapes have been used to visualize different kinds of data. The a Atlas of Knowledge and the Atlas of Science by Katy Börner our also very good overviews of non-wacky and wacky visualization both of both sides. And then one of my personal favorites dear data, uh, it's a great great book that I really recommend that you take a look at I'm not going to get into why I believe that it's a wonderful but if you follow my advice and get a copy of it, I believe that you are going to enjoy it a lot.

Data Visualization for Storytelling and Discovery: Module 4 video, part 2 - Resources

Besides reading books. You also will need to learn how to use software tools and I'm going to give you just a couple of recommendations of where to find more video tutorials more resources of this kind. The first one would be Andy Kirk's um, visualizing data website provide a link directly from the from the slide. So Andy has created a series of a websites inside his own website in which he talks about all the software tools that are available right now to create data visualization. And has written a short article about each one of them. And he also, provides links to where to learn how to use those those software tools in many cases. Another website that you can consult is my own personal website, which is the title of my first book The Functional Art .com on the upper right corner of thefunctionart.com. There is a section called tutorials on resources. That section contains all the video tutorials that I have recorded throughout the years for my students at the University of Miami.

So here you will find tutorials about tools that you are already familiar with. INZight for example or Flourish, but there are also tutorials about many other tools such as Adobe Illustrator or Quantum GIS, which is a tool to design, a design maps. And many many others.

Finally. If you want to take your visualization skills to the next level and you want to really really learn how to design fully customized data visualization for the for the digital world for the web. Um, so for tools would not let you do that. They will not let you do fully customized visualisations the ones that you see sometimes in the New York Times or the Washington Post. You will learn need to learn a little bit of JavaScript coding and in particular you will need to learn a specific JavaScript library called D3. Right? So I will do this after you have gotten a good, you know, a good understanding of principles, a good understanding of software tools. You have created your own first data visualization projects. Then is when I will start getting into the fully customized visualization world by learning D3 and JavaScript.

These are two excellent resources to do that. There are two books about D3 the first one provides a good introduction to D3 and the second one is a little bit more a little bit deeper a little bit more complex, but also quite worthwhile.

But learning software tools for learning programming languages such as JavaScript will lead you know where I when I say learning, I mean learning them from books from tutorials will lead you nowhere if you don't put those skills to practice. So the main recommendation that I have for you is that if this course has gotten you interested in the world of data visualization. Practice. Start doing your own visualizations. This is slide basically summarizes how I would do that process myself. So pick topics that you really care about human inequality, uh women's access to the workforce, health care, or whatever. Whatever topics that... sports, sports for example, right. Things that you really care about. Then try to find sources for data related to those, um to those topics. Then try to verify the quality of those data. If you have the chance with experts. For example consulting with experts. Try to extract meaning from those data in order to come up with the stories that you can tell and then tell those stories through the through the design of graphs, maps, charts.

This process that I recommend that you follow in the future if you're interested in creating, developing a career in data visualization is exactly what I'm asking you to do this same week for your final project. I'm going to ask you to basically tell me a topic that you're interested in and then create a compelling data visualization about that topic. Think about what stories are worth telling that have not been told so far and tell me that story. Create the data visualization with Flourish or whatever other software tool you want and then post the results in the discussion forums for all the other students to see. And then try to provide constructive feedback to other students in those forums. Try to reply to the postings of other people and try to engage in conversations as well.

Alright. So this is what I recommend if you want to learn how to do the visualization but there's another very important very important lesson, which is that we should try or you should try to have fun. Visualization can be a lot of fun. Right? So by telling those stories that you're interested in other people's learning you can also have fun in that process. This could be a great motivation for any professional for you in the future. If you decide to pursue a career in data visualization. This concludes

week 4 I hope that you have had a lot of fun with these videos. Now, please go ahead and start designing your final projects. Thank you so much.

Data Visualization for Storytelling and Discovery: Final Thoughts

Alright. This is exciting. We got to the end of the of the course. I hope that you have enjoyed it that you have learned a lot and I would like you I would like to thank you all for participating in the course again. I mean, it's always exciting to see that so many people from so many countries are willing to learn about data visualization.

I have a very very personal reason why I'm so excited about this. I believe that. data visualization has the potential of becoming a universal language. Something that anybody and everybody can take advantage of and use in their daily lives or in our daily lives. And I hope that this course has been the first step for you in this in this process. Learning how to use this data visualization well. That field is exploding. Data visualization, as I mentioned in the very first video of this course is being seen, everywhere. We see it news media. We see it in scientific papers. We see in business presentations and in books. And I believe that you can be part of this revolution.

But at the same time I also believe that there is a potential for graphics visualization charts and maps to be misused. To be used to not to inform people but to misinform people. So in this last video, I would like to encourage you to think ethically about graphics and about visualization. Visualization I believe should never be used to sell ideas or to push agendas or to sell products alone. Visualization should be used primarily to inform people, to tell people things that you that they don't know, to highlight facts and events that may be worth exploring. Or that may be worth understanding. So, please use ethically and perhaps together we will be able to create a better informational environment. And as a consequence of that perhaps a better future for our children.